

STUDIES IN
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Novel Methods to Study Interfacial Layers

D. Möbius and
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Novel Methods To Study Interfacial Layers

**Martin Gade, Heinrich
Hühnerfuss, Gerald M. Korenowski**



Novel Methods To Study Interfacial Layers:

Novel Methods to Study Interfacial Layers D. Moebius, R. Miller, 2001-10-30 This book presents a number of selected papers given at the LB9 conference held in Potsdam Germany in August 2000 It is dedicated to new techniques and methodologies for studying interfacial layers One group of manuscripts deals with the application of surface plasmons at solid interfaces used for example in resonance spectroscopy and light scattering New applications of various types of Atomic Force Microscopy are reported making use of various modifications of tips A number of chapters are dedicated to light emitting diodes built with the help of LB layers The aim of these studies is the improvement of efficiency Electrochemical methods were described as tools for developing sensors in particular miniaturised pH or gas sensors The application of synchrotron X ray and NMR techniques have been described in detail in two extended chapters It is demonstrated how molecular information can be detected by these methods for various types of interfacial layers This monograph along with 130 papers that have been submitted for publication in the special issues of relevant journals represent the proceedings of the LBP conference

Interfacial Rheology Reinhard Miller, Libero Liggieri, 2009-06-17 This is the first book on interfacial rheology It aims to describe both its history as well as the current most frequently used experimental techniques for studying dilational and shear rheology of layers at liquid gas and liquid liquid interfaces The book opens with a chapter on the fundamentals of interfacial rheology All 16 contributions include the theoretical basis for the presented methodologies and experimental examples are given

Bubble and Drop Interfaces Miller, Liggieri, 2011-06-09 The book aims at describing the most important experimental methods for characterizing liquid interfaces such as drop profile analysis bubble pressure and drop volume tensiometry capillary pressure technique and oscillating drops and bubbles

Foam Films and Foams Dotchi Exerowa, Georgi Gochev, Dimo Platikanov, Libero Liggieri, Reinhard Miller, 2018-07-27 This book describes in detail the scientific philosophy of the formation and stabilization destabilization of foams It presents all hierarchical steps of a foam starting from the properties of adsorption layers formed by foaming agents discussing the properties of foam films as the building blocks of a foam and then describing details of real foams including many fields of application The information presented in the book is useful to people working on the formulation of foams or attempting to avoid or destruct foams in unwanted situations

Colloid and Surface Chemistry E.D. Shchukin, A.V. Pertsov, E.A. Amelina, A.S. Zelenev, 2001-12-19 This book covers major areas of modern Colloid and Surface Science in some countries also referred to as Colloid Chemistry which is a broad area at the intersection of Chemistry Physics Biology and Material Science investigating the disperse state of matter and surface phenomena in disperse systems The book arises of and summarizes the progress made at the Colloid Chemistry Division of the Chemistry Department of Lomonosov Moscow State University MSU over many years of scientific pedagogical and methodological work Throughout the book the presentation of fundamental theoretical and experimental approaches and results is combined with discussion of general scientific basis of their role in nature and applications in

various technological processes **Membrane-active Peptides** Miguel A. R. B. Castanho,2010 *Marine Surface Films* Martin Gade,Heinrich Hühnerfuss,Gerald M. Korenowski,2006-08-06 Since the late 1960s various groups have investigated the influence of marine surface films on mechanisms dominating energy and mass transfer across the ocean atmosphere interface However a compendium summarizing the state of the art research in this field is still missing The book fills this gap and transfers the accumulated knowledge to the scientific community After a brief historical chapter basic chemical insights are presented followed by theoretical and experimental approaches carried out in laboratory facilities Air sea interaction experiments are then described and finally remote sensing applications with sea slicks and crude oil spills are presented

Kirk-Othmer Concise Encyclopedia of Chemical Technology, 2 Volume Set Kirk-Othmer,2007-07-16 This is an easily accessible two volume encyclopedia summarizing all the articles in the main volumes Kirk Othmer Encyclopedia of Chemical Technology Fifth Edition organized alphabetically Written by prominent scholars from industry academia and research institutions the Encyclopedia presents a wide scope of articles on chemical substances properties manufacturing and uses on industrial processes unit operations in chemical engineering and on fundamentals and scientific subjects related to the field Emulsions, Foams, and Suspensions Laurier L. Schramm,2006-05-12 Until now colloid science books have either been theoretical or focused on specific types of dispersion or on specific applications This then is the first book to provide an integrated introduction to the nature formation and occurrence stability propagation and uses of the most common types of colloidal dispersion in the process related industries The primary focus is on the applications of the principles paying attention to practical processes and problems This is done both as part of the treatment of the fundamentals where appropriate and also in the separate sections devoted to specific kinds of industries Throughout the treatment is integrated with the principles of colloid and interface science common to each dispersion type presented for each major physical property class followed by separate treatments of features unique to emulsions foams or suspensions The first half of the book introduces the fundamental principles introducing readers to suspension formation and stability characterization and flow properties emphasizing practical aspects throughout The following chapters discuss a wide range of industrial applications and examples serving to emphasize the different methodologies that have been successfully applied Overall the book shows how to approach making emulsions foams and suspensions with different useful properties how to propagate them and how to prevent their formation or destabilize them if necessary The author assumes no prior knowledge of colloid chemistry and with its glossary of key terms complete cross referencing and indexing this is a must have for graduate and professional scientists and engineers who may encounter or use emulsions foams or suspensions or combinations thereof whether in process design industrial production or in related R D fields *Food Colloids, Biopolymers and Materials* Eric Dickinson,Ton Van Vliet,2007-10-31 Food scientists aim to control the taste and texture of existing food products and to formulate new structures of high quality using novel combinations of ingredients and processing methods

Food Colloids Biopolymers and Materials describes the physical chemistry and material science underlying the formulation and behaviour of multi phase food systems and includes descriptions of new experimental techniques recent food colloids research findings authoritative overviews of conceptual issues Essential new findings are presented and emphasis is placed on the interfacial and gelation properties of food proteins and the role of colloidal and biopolymer interactions in determining the properties of emulsions dispersions gels and foams Specific topics include confocal microscopy diffusing wave spectroscopy protein polysaccharide interactions biopolymer phase separation fat crystallization bubble droplet coalescence and bulk and surface rheology This book is the latest addition to the highly regarded food colloid series published by the Royal Society of Chemistry and is of relevance to those working and researching in food science and surface and colloid science

Multilayer Thin Films Gero Decher, Joe B. Schlenoff, 2012-05-07 This second comprehensive edition of the pioneering book in this field has been completely revised and extended now stretching to two volumes The result is a comprehensive summary of layer by layer assembled truly hybrid nanomaterials and thin films covering organic inorganic colloidal macromolecular and biological components as well as the assembly of nanoscale films derived from them on surfaces These two volumes are essential for anyone working in the field as well as scientists and researchers active in materials development who needs the key knowledge provided herein for linking the field of molecular self assembly with the bio and materials sciences

Molecular Organisation on Interfaces Gerhard Lagaly, 2003-07-01 This volume contains studies on the molecular organisation on interfaces and nanoparticles The contributions were presented during the 40 General Meeting Hauptversammlung of the Kolloid Gesellschaft in Potsdam in September 2001 and are related to the subject Colloids and Life Science Therefore a diversity of papers were collected covering a large field synthesis of polymer colloids biominerals and nanoparticles investigations on monolayers lyotropic mesophases polymeric surfactants micellar transitions supramolecular compounds for modifying polymers solid particles for emulsion stabilisers and adsorbents for odour control

Fullerenes and Other Carbon-Rich Nanostructures Jean-François Nierengarten, 2014-05-16 Yanfei Shen and Takashi Nakanishi Exotic Self Organized Fullerene Materials Based on Uncommon Hydrophobic Amphiphilic Approach Yuming Zhao and Guang Chen C60 Fullerene Amphiphiles as Supramolecular Building Blocks for Organized and Well Defined Nano scale Objects Anna Troeger Vito Sgobba and Dirk M Guldi Multilayer Assembly for Solar Energy Conversion Delphine Felder Flesch Self or Induced Organization of 60 Fullerene Hexakisadducts Andr s de la Escosura Olga Trukhina and Tom s Torres Dual Role of Phthalocyanines in Carbon Nano structure Based Organic Photovoltaics Riccardo Marega Davide Giust and Davide Bonifazi Supramolecular Chemistry of Carbon Nano tubes at Interfaces Toward Applications Stephanie Frankenberger Johanna A Januszewski and Rik R Tykwinski Oligomers from sp Hybridized Carbon Cumulenes and Polyynes

Molecules in Interaction with Surfaces and Interfaces Reinhold Haberlandt, Dieter Michel, Andreas Pöppel, Ralf Stannarius, 2004-03-15 The study of the interaction of molecules with surfaces and interfaces is of great importance for the

understanding of adsorption and catalysis on solid surfaces the complex properties of molecules on fluid interfaces and the relationship between structure and functionality in macromolecular biological systems It is the aim of this volume to present and analyse in a comprehensive and accessible way the methodical achievements and the recent progress in this field The broadness of both scope and selection of the topics should help in particular non expert readers to become familiar with this exciting field of research

Food Colloids Eric Dickinson, Martin E Leser, 2007-10-31 Food structure at the molecular level and how it impacts on health taste texture and shelf life is becoming an increasingly important area of science Food Colloids Self Assembly and Material Science describes new developments in the theory and practice of the formulation of food emulsions dispersions gels and foams Particular emphasis is placed on the self assembly of surfactants and biopolymers in food Topics include colloid science in food nutrition and the relationship of texture to sensory perception of food materials It also discusses the exploitation of surfactant mesophases for nanoscale encapsulation the interfacial rheological properties of mixed interfaces the dynamics and microrheology of gels and emulsions the stability of droplets and bubbles the effects of thermal and mechanical processing on food colloid stability and the electrostatic interactions of proteins with polysaccharides This authoritative book will serve as a guide and reference to researchers in the field of food colloids

Acoustic Waves Marco G. Beghi, 2011-11-14 The concept of acoustic wave is a pervasive one which emerges in any type of medium from solids to plasmas at length and time scales ranging from sub micrometric layers in microdevices to seismic waves in the Sun's interior This book presents several aspects of the active research ongoing in this field Theoretical efforts are leading to a deeper understanding of phenomena also in complicated environments like the solar surface boundary Acoustic waves are a flexible probe to investigate the properties of very different systems from thin inorganic layers to ripening cheese to biological systems Acoustic waves are also a tool to manipulate matter from the delicate evaporation of biomolecules to be analysed to the phase transitions induced by intense shock waves And a whole class of widespread microdevices including filters and sensors is based on the behaviour of acoustic waves propagating in thin layers The search for better performances is driving to new materials for these devices and to more refined tools for their analysis

Physics, Chemistry, and Application of Nanostructures Viktor Evgen'evich Borisenko, Sergey V. Gaponenko, V. S. Gurin, 2003 This book contains invited review papers and short notes presented at the International Conference on Physics Chemistry and Application of Nanostructures Nanomeeting 2003 Contents Physics of Nanostructures Si SiGe Nanostructures Challenges and Future Perspectives D Grtzmacher Spin Resolved Inverse Photoemission from Layered Magnetic Nanostructures R Bertacco et al Nonlinear Optical Properties of One Dimensional Photonic Crystals C Sibilia et al Tunable Three Dimensional Photonic Crystals Based on Opal VO₂ Composites V G Golubev Interband Transitions in Si Nanostructures Within Effective Mass Approximation X Zianni Chemistry of Nanostructures Nanocluster Superlattices Grown at Solution Surfaces S Sato et al Excitonics of ICoVII Semiconductors C S Sunandana Nanotechnology Mechanisms of Island Vertical Alignment in Ge Si

001 Quantum Dot Multilayers V Le Thanh Enhanced Luminescence of Lanthanides from Xerogels in Porous Anodic Alumina N V Gaponenko Advanced Scanning Probes as Applied to Self Organized Organic Systems H Fuchs Nanostructure Based Devices InGaN GaN Quantum Wells Fabrication Optical Properties and Application in Light Emitting Devices G P Yablonskii Carbon Nanotubes in Microelectronic Applications F Kreupl et al Quantum Confined Impurities as Single Atom Quantum Dots Application to Terahertz Emitters P Harrison et al and other papers Readership PhD students academics researchers and industrialists in nanotechnology *Physics, Chemistry And Application Of Nanostructures: Reviews And Short Notes To Nanomeeting 2003* Victor E Borisenko, Sergei Vasil'evich Gaponenko, Valerij S Gurin, 2003-04-29 This book contains invited review papers and short notes presented at the International Conference on Physics Chemistry and Application of Nanostructures Nanomeeting 2003 **Computational Methods for Complex Liquid-Fluid Interfaces** Mohammad Taeibi Rahni, Mohsen Karbaschi, Reinhard Miller, 2015-11-11 Computational Methods for Complex Liquid Fluid Interfaces highlights key computational challenges involved in the two way coupling of complex liquid fluid interfaces The book covers a variety of cutting edge experimental and computational techniques ranging from macro to meso and microscale approaches including pivotal applications As example Innovations in Ionic Liquid-Based Surfactants and Interfacial Phenomena Mona Kharazi, Javad Saien, Aliyar Javadi, Reinhard Miller, 2025-07-22 Innovations in Ionic Liquid Based Surfactants and Interfacial Phenomena offers a comprehensive exploration of ionic liquid based surfactants ILBSs and their transformative potential This book is divided into three sections Section I establishes the fundamental properties of ionic liquids ILs and ILBSs emphasizing their unique structures environmental advantages and flexible design It details the diverse types of ILBSs highlighting their individual characteristics and applications Section II delves into the crucial interfacial behavior of ILBSs examining their role in reducing interfacial tension influencing micelle formation enhancing emulsification processes and modifying surface wettability The mechanisms underlying these phenomena are thoroughly investigated with particular attention paid to the impact of the structure of ILBSs on their performance Section III showcases the broad applicability of ILBSs across various industries Specific applications discussed include the stabilization of particle dispersions the improvement of extraction techniques and the significant enhancement of oil recovery from challenging reservoirs This book bridges the gap between fundamental principles and practical applications equipping the readers with the necessary knowledge to harness the revolutionary potential of ILBSs It serves as an invaluable resource for researchers academics and professionals in this rapidly evolving field

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